CLAIMS

What is claimed is:

1. A method for fabricating a ground-ball bonding structure on a TBGA package constructed on a heat sink and a tape;

the method comprising the steps of:

(1) forming a via hole in the tape to expose a selected part of the heat sink;

(2) forming a ring-shaped ground-ball pad over the tape and around the via hole; the ring-shaped ground-ball pad being formed with a plurality of air vents spaced substantially at equal radial intervals around the via hole and cut all the way into the tape until reaching the heat sink;

(3) forming a solder mask over the tape while unmasking the ring-shaped ground-ball pad;

(4) performing a solder-pasting process to paste a solder material through the solder mask into the via hole; and during the solder-pasting process, air-filled voids are undesirably left in the via hole;

(5) performing a first solder-reflow process to reflow the pasted solder in the via hole; and during the first solder-reflow process, the air in the air-filled voids would substantially drawn via the air vents to outside atmosphere, thereby allowing the pasted solder to substantially fill up the entire void space of the via hole;

(6) attaching a solder ball by means of a solder flux to the pasted solder in the via hole; and

(7) performing a second solder-reflow process so as to reflow the solder ball, the solder flux, and the solder paste into an integral body of solder wetted to the ring-shaped ground-ball pad to serve as a ground ball connected to the heat sink.

2. The method of claim 1, wherein in said step (2), the ground-ball pad is formed with two air vents spaced substantially at 180□ intervals around the via hole.

3. The method of claim 1, wherein in said step (2), the ground-ball pad is formed with three air vents spaced substantially at 120□ intervals around the via hole.

4. The method of claim 1, wherein in said step (2), the ground-ball pad is formed with four air vents spaced substantially at 90□ intervals around the via hole

5. A TBGA package configuration, comprising:

(a) a heat sink;

(b) a tape mounted over the heat sink and formed with a via hole to expose a selected part of the heat sink;

(c) a ring-shaped ground-ball pad formed over the tape and around the via hole; the ring-shaped ground-ball pad being formed with a plurality of air vents spaced substantially at equal radial intervals around the via hole and cut all the way into the tape until reaching the heat sink; the air vents being used to facilitate the drainage of trapped air in the via hole due to solder material being filled into the via hole to outside atmosphere during solder-reflow process; and

(d) a solder mask formed over the tape while unmasking the ring-shaped ground-ball pad.

6. The TBGA package configuration of claim 5, wherein the ring-shaped ground-ball pad is formed with two air vents spaced substantially at 180□ intervals around the via hole.

7. The TBGA package configuration of claim 5, wherein the ring-shaped ground-ball pad is formed with three air vents spaced substantially at 120□ intervals around the via hole.

8. The TBGA package configuration of claim 5, wherein the ring-shaped ground-ball pad is formed with four air vents spaced substantially at 90□ intervals around the via hole.

* * * * *